# FAO SPECIFICATIONS AND EVALUATIONS

# FOR AGRICULTURAL PESTICIDES

## DIFLOVIDAZIN

### 3-(2-chlorophenyl)-6-(2,6-difluorophenyl)-1,2,4,5-tetrazine

**2003**

FOOD AND AGRICULTURE ORGANIZATION *of* THE UNITED NATIONS

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## DIFLOVIDAZIN

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[1] This disclaimer applies to all specifications published by FAO.

# INTRODUCTION

FAO establishes and publishes specifications*[2] for technical material and related formulations of agricultural pesticides with the objective that these specifications may be used to provide an international point of reference against which products can be judged either for regulatory purposes or in commercial dealings.

Since 1999 the development of FAO specifications has followed the **New Procedure**, first described in the 5th edition of the "Manual on the development and use of FAO specifications for plant protection products" (FAO Plant Production and Protection Paper No. 149) and, subsequently, in the 1st edition of the "Manual for Development and Use of FAO and WHO Specifications for Pesticides" (FAO Plant Production and Protection Paper No. 173, 2002). This **New Procedure** follows a formal and transparent evaluation process. It describes the minimum data package, the procedure and evaluation applied by FAO and the experts of the "FAO/WHO Joint Meeting on Pesticide Specifications" (JMPS).

FAO Specifications now only apply to products for which the technical materials have been evaluated. Consequently from the year 2000 onwards the publication of FAO specifications under the **New Procedure** has changed. Every specification consists now of two parts, namely the specifications and the evaluation report(s):

**Part One**: The Specification of the technical material and the related formulations of the pesticide in accordance with chapters 4 to 9 of the 1st edition of the "FAO/WHO Manual on Pesticide Specifications."

**Part Two**: The Evaluation Report(s) of the pesticide, reflecting the evaluation of the data package carried out by FAO and the JMPS. The data are provided by the manufacturer(s) according to the requirements of chapter 3 of the "FAO/WHO Manual on Pesticide Specifications" and supported by other information sources. The Evaluation Report includes the name(s) of the manufacturer(s) whose technical material has been evaluated. Evaluation reports on specifications developed subsequently to the original set of specifications are added in a chronological order to this report.

FAO Specifications developed under the **New Procedure** do not necessarily apply to nominally similar products of other manufacturer(s), nor to those where the active ingredient is produced by other routes of manufacture. FAO has the possibility to extend the scope of the specifications to similar products but only when the JMPS has been satisfied that the additional products are equivalent to those which formed the basis of the reference specification.

[2] The publications are available on Internet under (http://www.fao.org/AG/AGP/AGPP/Pesticid/) or as hardcopy from the Plant Protection Information Officer.

## PART ONE

## SPECIFICATIONS

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**DIFLOVIDAZIN**

DIFLOVIDAZIN INFORMATION

DIFLOVIDAZIN TECHNICAL MATERIAL

DIFLOVIDAZIN AQUEOUS SUSPENSION CONCENTRATE

# DIFLOVIDAZIN

## INFORMATION

*ISO common name*

diflovidazin (proposed E-ISO common name)

*Synonyms*

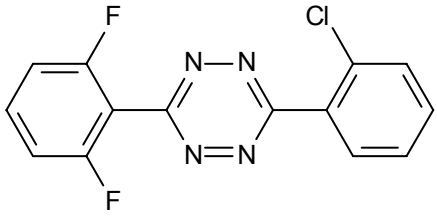
flufenzine, SZI-121

*Chemical names*

*IUPAC* 3-(2-chlorophenyl)-6-(2,6-difluorophenyl)-1,2,4,5-tetrazine

*CA* 1,2,4,5-tetrazine, 3-(2-chlorophenyl)-6-(2,6-difluorophenyl)

*Structural formula*




*Molecular formula*

$C_{14}H_7ClF_2N_4$

*Relative molecular mass*

304.7

*CAS Registry number*

162320-67-4

*CIPAC number*

734 (Note: CIPAC number 734 originally referred to the code number SZI-121 and the name flufenzine)

*Identity tests:*

HPLC-UV retention time, IR spectrum

## DIFLOVIDAZIN TECHNICAL MATERIAL

FAO Specification 734/TC (2003)

*This specification, which is PART ONE of this publication, is based on an evaluation of data submitted by the manufacturer whose name is listed in the evaluation report (734/2003). It should be applicable to relevant products of the company but it is not an endorsement of those products, nor a guarantee that they comply with the specifications The specification may not be appropriate for the products of other manufacturers. The evaluation report (734/2003,) as PART TWO, forms an integral part of this publication.*

### 1 Description

The material shall consist of diflovidazin, together with related manufacturing impurities, and shall be a magenta crystalline solid, free from visible extraneous matter and added modifying agents.

### 2 Active ingredient

#### 2.1 **Identity tests** (734/TC/(M)/-, Note 1)

The active ingredient shall comply with an identity test and, where the identity remains in doubt, shall comply with at least one additional test.

#### 2.2 **Diflovidazin content** (734/TC/(M)/-, Note 1)

The diflovidazin content shall be declared (not less than 975 g/kg) and, when determined, the average measured content shall not be lower than the declared minimum content.

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Note 1 Methods for the identification and determination of diflovidazin content were adopted by CIPAC in 2003 but are not yet published. Prior to publication, copies of the methods may be obtained through the CIPAC website, http://www.cipac.org or from the Secretary, Dr László Bura, Central Service for Plant Protection and Soil Conservation, Budaörsi út 141-145, 1118 Budapest, Hungary.

## DIFLOVIDAZIN AQUEOUS SUSPENSION CONCENTRATE

FAO Specification 734/SC (2003)

*This specification, which is PART ONE of this publication, is based on an evaluation of data submitted by the manufacturer whose name is listad in the evaluation report (734/2003). It should be applicable to relevant products of the company but it is not an endorsement of those products, nor a guarantee that they comply with the specifications. The specification may not be appropriate for the products of other manufacturers. The evaluation report (734/2003), as PART TWO, forms an integral part of this publication..*

### 1 Description

The material shall consist of a suspension of fine particles of technical diflovidazin, complying with the requirements of FAO specification 734/TC, in an aqueous phase together with suitable formulants. After gentle agitation the material shall be homogeneous (Note 1) and suitable for further dilution in water.

### 2 Active ingredient

2.1 **Identity tests** (734/TC/(M)/-, Note 2)

The active ingredient shall comply with an identity test and, where the identity remains in doubt, shall comply with at least one additional test.

2.2 **Diflovidazin content** (734/SC/(M)/-, Note 2)

The diflovidazin content shall be declared (g/kg or g/l at 20 ± 2ºC, Note 3) and, when determined, the average content measured shall not differ from that declared by more than the following tolerance:

| Declared content in g/kg or g/l | Tolerance |
|---|---|
| above 100 up to 250<br>Note the upper limit is included in the range. | ± 6% of the declared content |

### 3 Physical properties

3.1 **Pourability** (MT 148.1, CIPAC Handbook J, p. 133, 2000)

Maximum residue: 4%.

3.2 **Spontaneity of dispersion** (MT 160, CIPAC Handbook F, p. 391, 1995) (Note 4)

A minimum of 85% of the diflovidazin content found under 2.2 shall be in suspension after 5 min in CIPAC Standard Water D at 30 ±2°C.

3.3 **Suspensibility** (MT 161, CIPAC Handbook F, p. 394, 1995; MT 184, CIPAC Handbook K, p. 142, 2003) (Note 4)

A minimum of 85% of the diflovidazin content found under 2.2 shall be in suspension after 30 min in CIPAC Standard Water D at 30 ± 2°C.

3.4 **Wet sieve test** (MT 185, CIPAC Handbook K, p. 149, 2003) (Note 5)
Maximum: 0.4% of the formulation shall be retained on a 75 µm test sieve.

3.5 **Persistent foam** (MT 47.2, CIPAC Handbook F, p. 152, 1995) (Note 6)
Maximum: 20 ml after 1 min.

## 5 Storage stability

5.1 **Stability at 0°C** (MT 39.3, CIPAC Handbook J, p. 126, 2000)
After storage at 0 ± 2°C for 7 days, the formulation shall continue to comply with the clauses for:
- suspensibility (4.3);
- wet sieve test (4.4).

5.2 **Stability at elevated temperature** (MT 46.3, CIPAC Handbook J, p. 128, 2000)
After storage at 54 ± 2°C for 14 days, the determined average active ingredient content must not be lower than 95% relative to the determined average content found before storage (Note 7) and the formulation shall continue to comply with the clauses for:
- pourability (4.1);
- spontaneity of dispersion (4.2);
- suspensibility (4.3);
- wet sieve test (4.4).

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Note 1 Before sampling to verify the formulation quality, inspect the commercial container carefully. On standing, suspension concentrates usually develop a concentration gradient from the top to the bottom of the container. This may even result in the appearance of a clear liquid on the top and/or of sediment on the bottom. Therefore, before sampling, homogenize the formulation according to the instructions given by the manufacturer or, in the absence of such instructions, by gentle shaking of the commercial container (for example by inverting the closed container several times). Large containers must be opened and stirred adequately. After this procedure, the container should not contain a sticky layer of non-dispersed matter at the bottom. A suitable and simple method of checking for a non-dispersed sticky layer "cake" is by probing with a glass rod or similar device adapted to the size and shape of the container. All the physical and chemical tests must be carried out on a laboratory sample taken after the recommended homogenization procedure.

Note 2 Methods for the identification and determination of diflovidazin content were adopted by CIPAC in 2003 but are not yet published. Prior to publication, copies of the methods may be obtained through the CIPAC website, http://www.cipac.org or from the Secretary, Dr László Bura, Central Service for Plant Protection and Soil Conservation, Budaörsi út 141-145, 1118 Budapest, Hungary.

Note 3 Unless homogenization is carried out carefully, it is possible for the sample to become aerated. This can lead to errors in the determination of the mass per millilitre and in calculation of the active ingredient content (in g/l) if methods other than MT 3.3 are used. If the buyer requires both g/kg and g/l at 20°C, then in case of dispute the analytical results shall be calculated as g/kg.

Note 4 Chemical assay is the only fully reliable method to measure the mass of active ingredient still in suspension. However, simpler methods such as gravimetric and solvent extraction determination may be used on a routine basis provided that these methods have been

shown to give equal results to those of the chemical assay method. In case of dispute, the chemical method shall be the referee method.

Note 5 This test detects coarse particles (e.g. caused by crystal growth) or agglomerates (crust formation) or extraneous materials which could cause blockage of spray nozzles or filters in the spray tank.

Note 6 The mass of sample to be used in the test should be specified at the application rate of use recommended by the supplier.

Note 7 Samples of the formulation taken before and after the storage stability test should be analyzed concurrently after the test in order to reduce the analytical error.

PART TWO

## EVALUATION REPORTS

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DIFLOVIDAZIN

2003 FAO/WHO evaluation report based on submission of data from Agro-Chemie Pesticide Manufacturing Trading and Distributing Ltd (TC, SC)

FAO SPECIFICATIONS FOR AGRICULTURAL PESTICIDES

FAO/WHO EVALUATION REPORT 734/2003

# DIFLOVIDAZIN

## Explanation

The data for diflovidazin were evaluated in support of new FAO specifications.

Diflovidazin is under patent in the EU, in the USA and in other countries until 2014.

Diflovidazin has not been evaluated by the FAO/WHO JMPR or IPCS.

The draft specification and the supporting data were provided by Agro-Chemie Pesticide Manufacturing Trading and Distributing Ltd., Hungary, in 2000.

## Uses

Diflovidazin is a selective acaricide, with translaminar activity. It is used in horticulture, viticulture and cotton growing, against a wide range of mites of the families Tetranychidae, Eriophyidae, Tarsonemidae and Tenuipalpidae (*Panonychus ulmi, Tetranychus urticae, Colomerus vitis, Calepitrimerus vitis, Aculus schlechtendali, Aculus fockeui, Acalitus essigi, Epitrimerus trilobus, Phytonemus pallidus, Polyphagotarsonemus latus, Oxypleurites carinatus, Eotetranychus tiliarium, Oligonychus ununguis).*

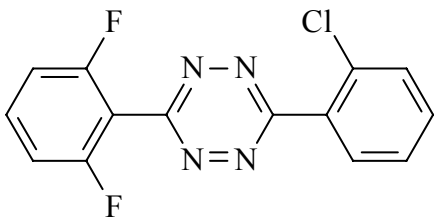
## Identity

ISO common name: diflovidazin (proposed E- ISO common name)

Chemical names

| | |
|---|---|
| IUPAC: | 3-(2-chlorophenyl)-6-(2,6-difluorophenyl)-1,2,4,5-tetrazine |
| CA: | 1,2,4,5-tetrazine, 3-(2-chlorophenyl)-6-(2,6-difluorophenyl) |
| CAS No: | 162320-67-4 |
| CIPAC No: | 734 (Note: CIPAC number 734 originally referred to the code number SZI-121 and the name flufenzine) |
| Synonyms: | flufenzine; SZI-121 |

Structural formula:




Molecular formula: $C_{14}H_7ClF_2N_4$

Relative molecular mass: 304.7

Identity tests: HPLC-UV retention time, IR spectrum.

## Physical and chemical properties of diflovidazin

Table 1. Physico-chemical properties of pure diflovidazin.

| Parameter | Value(s) and conditions | Purity % | Method reference |
|---|---|---|---|
| Vapour pressure | $< 10^{-5}$ Pa at 25ºC<br>Estimated by extrapolation using Henry's law. | 99.2 | OECD 104 |
| Melting point, boiling point and/or temperature of decomposition | Melting point: 187-189ºC (decomp.)<br>No boiling point at atmospheric or reduced pressure.<br>Decomposition temperature: at 182ºC, 2% mass loss; at 237ºC, 96% mass loss (by DTG). | 99.2 | OECD 102<br>OECD 103<br><br>OECD 103 |
| Solubility in water | 0.23 mg/l at 25ºC at pH 7<br>0.21 mg/l at 25ºC at pH 1<br>0.27 mg/l at 25ºC at pH 3<br>0.30 mg/l at 25ºC at pH 5<br>0.18 mg/l at 25ºC at pH 9 (decomp.). | 99.2 | EEC A6 |
| Octanol/water partition coefficient | log $P_{OW}$ = 3.3 at 25ºC. | 99.2 | EEC A8 |
| Hydrolysis characteristics | Half-life = 497 h at 25°C at pH 4.0<br>Half-life = 36 h at 25°C at pH 7.0<br>Half-life = 9 h at 25°C at pH 9.0 | 99.2 | OECD 111 |
| Dissociation characteristics | Does not dissociate. | 99.2 | OECD 112 |

Table 2. Chemical composition and properties of diflovidazin technical material (TC).

| | |
|---|---|
| Manufacturing process, maximum limits for impurities ≥ 1 g/kg, 5 batch analysis data | Confidential information supplied and held on file by FAO. Mass balances were 99.24-99.48% and percentages of unknowns were 0.04-0.12%. |
| Declared minimum diflovidazin content | 975 g/kg. |
| Relevant impurities ≥ 1 g/kg and maximum limits for them | None. |
| Relevant impurities **<** 1 g/kg and maximum limits for them: | None. |
| Stabilisers or other additives and maximum limits for them: | None. |
| Melting temperature range | 187-189°C (decomposition). |

## Hazard summary

Notes.

(i) The proposer provided written confirmation that the toxicological and ecotoxicological data included in the summary below were derived from diflovidazin having impurity profiles similar to those referred to in the table above.

(ii) The conclusions expressed in the summary below are those of the proposer, unless otherwise specified.

Table 3. Toxicology profile of diflovidazin technical material, based on acute toxicity, irritation and sensitization.

| Species | Test | Duration and conditions or guideline adopted | Results |
|---|---|---|---|
| Rat, male, female | Oral | 14 days, OECD 401 | $LD_{50}$ = 979 mg/kg bw (male)<br>594 mg/kg bw (female) |
| Rat, male, female | Dermal | 14 days, OECD 402 | $LD_{50}$ = >2000 mg/kg bw |
| Rat, male, female | Inhalation | 14 days, OECD 403 | $LC_{50}$ = >5000 mg/$m^3$ |
| Rabbit | Skin irritation | 2 weeks, OECD 404 | Non irritant |
| Rabbit | Eye irritation | 3 weeks, OECD 405 | Slightly irritant |
| Guinea pig | Skin sensitization | 2 weeks, OECD/1982 | Not a sensitizer |

Table 4. Toxicology profile of diflovidazin technical material, based on repeated administration (sub-acute to chronic).

| Species | Test | Duration and conditions or guideline adopted | Results |
|---|---|---|---|
| Rat | Oral | 28-day, OECD 408 | NOAEL = 50 mg/kg bw/day |
| Rat, m/f | Dermal | 28-day, OECD 401 | NOAEL = 500 mg/kg bw/day |
| Rat, m/f | Oral | 3-month, OECD 408 | NOAEL = 10 mg/kg bw/day |
| Dog | Oral | 3-month, OECD 452 | NOAEL = 10 mg/kg bw/day |
| Rat | Chronic carcinogenicity | Two-year, OECD 451 | Doses of 40-320 ppm in the food did not cause treatment-related significant increases in the incidences of benign or malignant tumours. |
| Rat | Teratogenicity | OECD 414 | Maternal toxic level and foetotoxic level = 70 mg/kg bw/day. |
| Rabbit | Teratogenicity | OECD 414 | Maternal toxic dose: 160 mg/kg/day (based on a decrease in body weight gain)<br>NOAEL for dams: 80 mg/kg/day<br>Teratogenic dose: none<br>NOAEL for foetuses: 80 mg/kg/day |
| Rat | Two-generation reproduction | OECD 416 | NOAEL for males and females: 10 mg/kg/day<br>NOAEL for reproductive performance: 30 mg/kg/day (male)<br>NOAEL for reproductive performance: 20 mg/kg/day (female)<br>NOAEL for developmental toxicity: 20 mg/kg/day |

Table 5. Mutagenicity profile of diflovidazin technical material, based on *in vitro* and *in vivo* tests.

| Species | Test | Conditions | Results |
|---|---|---|---|
| *Salmonella typhimurium* | Ames test | OECD 471 | No mutagenic activity |
| Mouse bone marrow cells | Micronucleus assay | OECD 474 | Does not induce micronuclei |
| Chinese hamster ovary cells | Forward mutation assay | OECD 476 | Non-genotoxic |
| Chinese hamster ovary cells | Cytogenetic study | OECD 473 | Non-clastogenic |

Table 6. Ecotoxicology profile of diflovidazin technical material.

| Species | Test | Duration and conditions | Results |
|---|---|---|---|
| Japanese quail (*Coturnix coturnix japonica*) | Acute oral toxicity | EPA/C, 797.2175, 4 weeks | $LD_{50}$ = >2000 mg/kg bw |
| Japanese quail | 8-day dietary toxicity | OECD, 205 | Dietary $LD_{50}$ = >5118 mg/kg bw |
| Mallard duck (*Anas platyrhynchos*) | 8-day dietary toxicity | OECD, 205 | Dietary $LD_{50}$ = >5093 mg/kg bw |
| Japanese quail | Reproduction toxicity | OECD 206 | NOEC = 215.5 mg/kg feed |
| Mallard duck | Reproduction toxicity | OECD 206 | NOEC = 42 mg/kg feed |
| Rainbow trout (*Salmo gairdneri*) | 96-hour static test | OECD 203 | $LC_{50}$ = >400 mg/l (no mortality) |
| *Daphnia magna* | Acute toxicity | OECD 202 | $EC_{50}$ = 0.23 mg/l (24h)<br>$EC_{50}$ = 0.14 mg/l (48h) |
| *Daphnia magna* | Reproduction toxicity | OECD 202 | 7 day $EC_{50}$ = 0.38 mg/l<br>14 day $EC_{50}$ = 1.22 mg/l<br>21 day $EC_{50}$ = 0.73 mg/l |
| Green alga, *Selenastrum capricornutum* | Acute toxicity | OECD 201 | Did not affect the growth rate of algae |
| Honey bee (*Apis mellifera*) | Acute oral toxicity | EPA 141, 48 h | $LD_{50}$ = >25.0 μg/bee |
| Honey bee | Contact toxicity | EPA 141, 48 h | $LD_{50}$ = >25.0 μg/bee |
| Earthworm (*Eisenia foetida*) | Acute oral toxicity | OECD 207, 14 days | $LC_{50}$ = >1000 μg/kg dry soil |
| *Phytoseiulus persimilis* | Effect on beneficial arthropod | EPPO Bull./15 | Harmless |
| *Pseudomonas putida* | Effect on non-target micro-organisms | Max. conc. in test medium 62.4 μg/ml | No inhibition effect |

Diflovidazin has not been evaluated by the IPCS or the FAO/WHO JMPR and has not yet been classified by IPCS according to hazard. Classification according to EU Directive 93/21/EEC is harmful (Xn, R22).

## Formulations

The main formulation type available is SC (aqueous suspension concentrate).

This formulation is registered and sold in Hungary, Romania, Bulgaria, Yugoslavia, Russia, Ukraine, Kazakhstan, Morocco, Ecuador, Uzbekistan and the United Arab Emirates.

## Methods of analysis and testing

The analytical method for the active ingredient (including identity tests) was adopted in 2003 as a provisional CIPAC method, 734/TC/(M)/. The diflovidazin is determined by reversed-phase HPLC, using UV detection at 270 nm and external standardization.

The method for determination of impurities was based on reversed-phase HPLC, using UV detection at 270 nm and external standardization.

Test methods for determination of physico-chemical properties of the technical active ingredient were OECD, CIPAC, EPA, EEC, while those for the formulation were CIPAC, as indicated in the specification.

**Physical properties**

The physical properties, the methods for testing them and the limits proposed for the SC formulation comply with the requirements of the Manual (FAO/WHO, 2002).

**Containers and packaging**

No special requirements for containers and packaging were identified.

**Expression of the active ingredient**

The active ingredient is expressed as diflovidazin.

**Appraisal**

Diflovidazin is under patent in various countries. It is a selective acaricide, which is structurally related to clofentezine, another acaricide. It is a reproduction inhibitor which prevents egg production by females and prevents the development of mites at chrysalis stages (Pap *et al*., 1994). It has contact and translaminar activity and typical application rates are 60-100 g ai/ha. The main formulation type available is an aqueous suspension concentrate (SC).

Diflovidazin is an odourless, mauve crystalline solid, of low vapour pressure and water solubility. It is relatively stable in aqueous media at pH 2-7 but is hydrolyzed in alkaline conditions (pH 9). Diflovidazin does not dissociate in aqueous media and it decomposes on heating. The technical material is not classified as having explosive, oxidising or flammable properties.

Diflovidazin had been proposed to ISO as a common name at the time of review although, at that time, it had not progressed to final adoption. A previously proposed common name of flufenzine was rejected by ISO because of its similarity to an existing name for a pharmaceutical (fluphenazine).

The data submitted were in accordance with the requirements of the Manual (FAO/WHO, 2002) and supported the draft specification. The data on physico-chemical, toxicological and ecotoxicological properties were in agreement with those evaluated as part of the Hungarian registration of flufenzine.

The Meeting was provided with commercially confidential information on the manufacturing process and batch analysis data on all impurities present at or above 1 g/kg. Mass balances were between 99.2–99.5% The data were identical to those submitted to for registration in Hungary and the proposer declared them to be identical to those submitted for registration in the countries listed above.

The Meeting noted that one impurity, clofentezine, is a specific acaricide with long residual activity. Clofentezine had been evaluated by the WHO IPCS and by the FAO/WHO JMPR in 1986 (R and T) (JMPR, 1986a and 1986b). The hazard classifications of clofentezine are: WHO (a.i.) III; USEPA (formulation) III; and EU:

Xn (harmful), N (dangerous for the environment) *(R43, may cause sensitization by skin contact)* (FAO,1987). The corresponding EU risk phrases were: R 20/22 (harmful by inhalation and if swallowed) and R 50/53 (very toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment. As the acute toxicity of the impurity clofentezine is lower than that of the active ingredient ($LD_{50}$ for rats = >5200 mg/kg for clofentezine and 979/594 mg/kg male/female for diflovidazin), and as there was no evidence of qualitative differences in the toxicity profiles of diflovidazin and clofentezine, the Meeting concluded that there was no toxicological reason to specify clofentezine as a relevant impurity. Clofentezine is slightly phytotoxic to glasshouse roses but, with a maximum of 3 g/kg in technical diflovidazin, the Meeting considered that this would not pose a significant risk. Clofentezine has no effect on predatory mites or beneficial insect species.

Therefore, on the basis of the information available, the Meeting concluded that none of the manufacturing impurities was of toxicological or environmental concern.

Diflovidazin was found to be of relatively low acute toxicity to the rat, particularly by dermal and inhalation routes. It was not irritant to skin nor was it a skin sensitizer but it was slightly irritant to eye. There were no indications for a teratogenic effect in rats and rabbits. Mutagenicity tests did not indicate mutagenic potential**.**
Diflovidazin is non-toxic to fish and algae, and is considered to be highly toxic to Daphnia. Diflovidazin is of low toxicity to birds, and appears to have no adverse effects on beneficial arthropods and microrganisms.

Diflovidazin has not been evaluated by the WHO IPCS, nor by the FAO/WHO JMPR and has not been classified by IPCS according to hazard. The classifications by the Hungarian authorities according to the EU system: (i) harmful by inhalation and if swallowed (R20/22); (ii) dangerous for the environment (N); (iii) very toxic to aquatic organisms (R50).

The HPLC methods for diflovidazin technical and SC formulations are provisional CIPAC methods. (734/TC/(M)/ CIPAC/4324, 734/SC/(M)/ CIPAC/4324). Test methods for determination of physico-chemical properties of the technical active ingredient and formulations were OECD and CIPAC, as indicated in the specifications.

## Recommendations

The Meeting recommended that the specifications for diflovidazin TC and SC, proposed by Agro-Chemie Pesticide Manufacturing Trading and Distributing Ltd and amended by agreement between the Meeting and the proposer, should be adopted by FAO.

## References


Pap et al., 1994 — Pap L., Hajimichael J., Bleicher E., Botár S. and Székely I. SZI-121 – Chemical and biological evaluation of a new acaricide. Brighton Crop Protection Conference – Pest and Diseases, 1994, 75-82.

JMPR, 1986a — FAO/WHO Joint Meeting on Pesticide Residues. Pesticide residues in food – 1986 evaluations. Part I – Residues. FAO Plant Production and Protection Paper 78, 1986.

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FAO/WHO, 2002. Manual on development and use of FAO and WHO specifications for pesticides. First edition. FAO plant production and protection paper 173. FAO, Rome, 2002.